

MILL AND ELEVATOR OWNERS AND FLOUR BROKERS SEE PAGE 32.

CHICAGO OFFICE,
40 La Salle Street.



MILWAUKEE OFFICE,
124 Grand Avenue.

Published by E. HARRISON CAWKER. VOL. 25, NO. 2. MILWAUKEE AND CHICAGO, JUNE, 1888.

TERMS: \$1.00 a Year in Advance.
Single Copies, 10 Cents.

The Case Improved Centrifugal Reel



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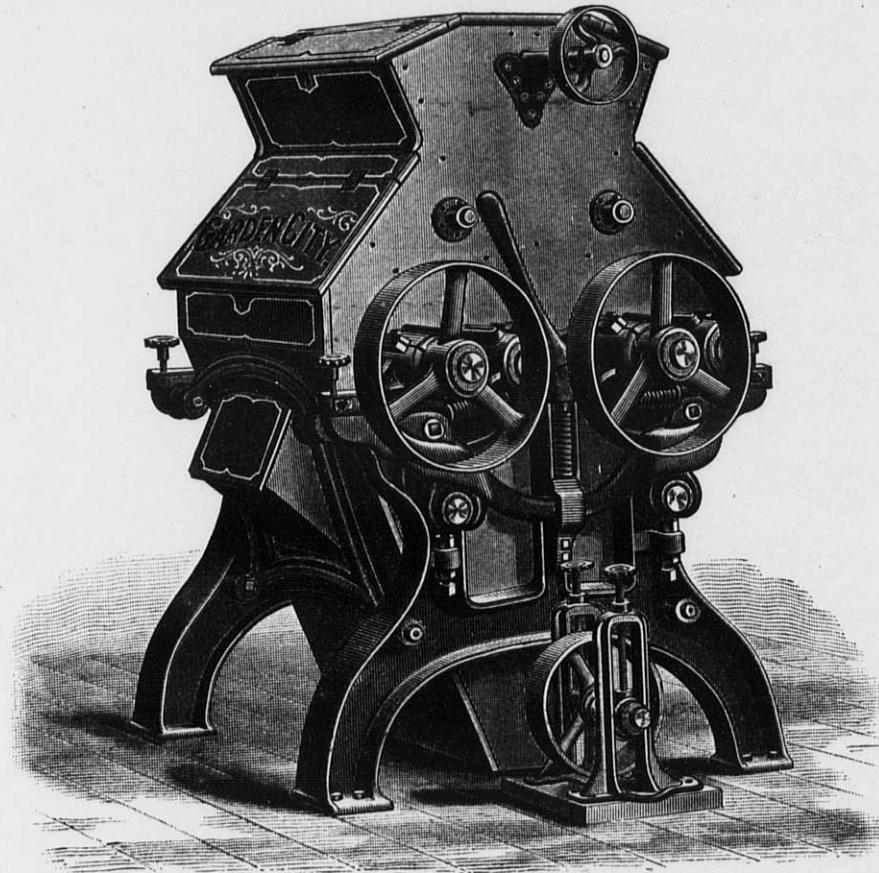


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Equal to any Roller Mill on the Market.

Perfect in Every Detail.



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• GARDEN CITY MILL FURNISHING CO.,
CHICAGO, ILL.

The United States Miller



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THE MILLERS' NATIONAL ASSOCIATION.

BRIEF REVIEW OF PROCEEDINGS.

The Twelfth Annual Convention of the Millers' National Association was held in Buffalo, N. Y., June 12, 13 and 14, 1888. The opening meeting at Music Hall, was called to order at 10.50 A. M. by acting president C. H. Seybt, of Highland, Ill. The visitors were duly welcomed in behalf of the Buffalo millers by Geo. Urban, of the Urban Mill Co. and of the city by Mayor Becker in appropriate addresses and duly responded to by the President. Pres. Seybt then read his address, full of good points. In conclusion he said: "You have assembled here to-day with the prime object of discussing the commercial woes of your business and for the purpose of devising ways and means how to better the condition of the trade." A committee was appointed to draft suitable resolutions relating to the late President, John Crosby of Minneapolis. The Treasurers report was made showing a balance on hand of \$3,285.86. The announcement was made that the Buffalo Citizens' Committee had arranged some amusements for the Convention, to consist of a carriage ride through the city, a boat ride about the rivers, docks and harbor and a banquet all of which we may say here passed of pleasantly and to the delight of several hundred visitors. Mr. S. T. K. Prime, of Dwight, Ill., then read his report on the present and prospective condition of crops, which was listened to with deep interest and at the conclusion of the reading a vigorous general discussion took place at the conclusion of which the Convention tendered its thanks to Mr. Prime for his able and valuable report.

At the afternoon session Gov. E. O. Standard, of St. Louis, read the report of the Special Committee on Domestic Trade. It treated the various points of Over-production; Over-competition; The Credit System; Local Brokers; Consignments; "Order" Bills of Lading; Brands; Freights, Overcharges, Reclamations, Organization, Central Office.

The consideration of this report was postponed to Wednesday.

Mr. Seybt, Chairman of the Committee on Flour Export then read the report of that committee. This report treated specially of the troubles met with in transportation and recommended the adoption of a simple and binding flour bill-of-lading and the establishment of a Central Office to look after the interests of exporters. (Printed copies of these reports can be obtained from Secretary Seamans, Milwaukee, Wis.) P. H. McGill, of

Baltimore, Md., then read his report as Chairman of the Committee on South American Flour Trade. In short the committee had been unable to secure any aid in advancing the flour trade of the United States, either through the Department of State or ambassadors from South American countries. It was moved and carried that a memorial to Congress on the subject should be prepared and signed by millers everywhere. The bill-of-lading matter and "London Clause" was then discussed and explained by members of the Association and the delegation from Great Britain and resolutions condemning the "London Clause" unanimously adopted.

Upon the assembling of the Convention on the morning of June 13, Senator Arkell, of Canajoharie, N. Y., read a valuable paper on "Bags and Bagging." A. A. Freeman, of La Crosse, Wis., then read his paper on "Present Abuses in Sales of Flour and Regulation of Production and Prices." This paper gave rise to a lively discussion in which a great many took part. The following two resolutions were then introduced and after considerable debating adopted:

Resolved, That the basis for assessment for mills of a capacity of 100 barrels' for 24 hours or less shall be \$5 per annum, and for larger mills \$5 additional for each 100 barrels of capacity, and that the basis for representation shall be one vote for each \$5 payment. Fractions for less than 50 barrels of capacity not to be counted, but all over 50 to be taken as 100. Membership subject to the payment of fees and the approval of the Executive Committee.

We recommend that when the sum of \$5,000 shall have been accumulated in the treasury, and not before, the Executive Committee shall be authorized, and are hereby instructed, to establish such office and to employ such secretary and assistants as will in their judgment be needed in forwarding the business of the Association, as instructed by this and other committee reports, or by resolution of the Association.

Mr. Seybt said that the foreign trade was suffering through arbitrary bills-of-lading. A committee had been appointed to draft a new bill-of-lading which they would submit through the Central Office for adoption by steamship companies, railroad companies, the Board of Underwriters, etc. This committee, which had been hard at work, and had perfected a form based on the old bills-of-lading, &c., was composed of gentlemen from Illinois, Indiana, New York, London, Liverpool, and Glasgow, and included himself. These seven men sat up until the small hours of the morning and got the thing together, trusting it was the right thing. He therefore offered this resolution:

Resolved, That this Association, in Convention assembled, hereby agrees to adopt the following bill-of-lading prepared by the Joint Committee of millers and foreign delegates, and that a committee be appointed with full power to bring about its adoption by the carriers.

At the suggestion of Mr. Fusz, this whole matter was referred to the Executive Committee, pending the organization of the Central Office.

Mr. McCann announced that the committee appointed to prepare resolutions in memory of President John Crosby was ready to report. The memorial was then read, and, upon motion of Mr. Smith, adopted by a silent rising vote.

Adjourned, to meet at 8 p. m. in the dining room of the Genesee Hotel.

At about four o'clock in the afternoon the entire body of visitors were taken out in carriages furnished by the Buffalo millers, and enjoyed a drive about the city and parks, returning about seven o'clock.

On assembling at the evening session the question of Option Dealing was discussed, but no definite action taken.

* * *

On the assembling of the Convention at 10 A. M., June 13, Mr. J. M. Case, of Columbus, O., read a paper on "Short Break Milling, Bolting Systems and Reels." Mr. A. W. Howard, of Minneapolis, read his paper on "Comparative Baking Tests, with Records and Reports."

Mr. Seybt called the attention of the Convention to the boat ride in the afternoon and banquet in the evening.

Mr. Seamans said that he took much satisfaction, on behalf of the mill-owners, mill-machinery-men, merchants, and other citizens of Milwaukee, in inviting the Association to hold its next annual convention in that city.

After brief debate the invitation was accepted on motion.

Mr. Freeman, in connection with his suggestions of the day before, offered the following resolutions:

Whereas, There appears to be an urgent necessity to regulate the production of flour in this country, and while recognizing and approving most of the recommendations of the Committee on Domestic Trade, but believing they should be supplemented by some efforts to limit production at times of over-crowded market; therefore be it

Resolved, That the Secretary of the Central Office, under the direction of the Executive Committee be, and he is hereby directed as soon as may be practicable to communicate with every member of the Association and obtain consents or agreements to make shutdowns; and, further,

Resolved, That when not less than three-fourths of the merchant milling capacity of each state represented in the membership of the National Association shall have given given consents and signed agreements to abide by the orders of the Central Office, the system shall be inaugurated and declared in operation, and the names of all consenting, as well as all refusing, shall be published; and, further,

Resolved, That after obtaining the consent of the necessary three-fourths efforts shall not be relaxed, but the Central Office shall make other special appeals not only to the obstinate members from the National Association, but to millers outside of the Association.

Resolved, That we hereby pledge ourselves, individually and collectively, to work with millers in and out of the National Association to obtain their acquiescence to this proposed system of limiting production.

present duty on wheat should be removed. Mr. Baldwin, of the Committee on Nominations, reported the following ticket, which was unanimously adopted by acclamation:

For President, C. H. Seybt, Highland, Ill.; First Vice-President, F. L. Greenleaf, Minneapolis, Minn.; Second Vice-President, P. H. McGill, Baltimore, Md.; Third Vice-President, Geo. Wilson, Rochester, N. Y.

Mr. Seybt, the newly elected president then took the chair and said: Gentlemen—I won't inflict a speech on you. I am too bashful for that, but at the same time I say I must feel gratified. It occurs to me that only a few years ago I passed through this city a sixteen year old German boy, just about as unsophisticated as you could scrape up in the Old Country. I didn't have a dollar in my

A vote of thanks to the business men of Buffalo for their unsurpassed hospitality was moved, seconded, and carried.

The Convention then adjourned *sine die*, subject to the call of the Executive Committee.

ECONOMY OF FUEL. Mr. A. J. Simmons, of Indianapolis, asserts that he has discovered a method of economizing fuel by which the use of coal will be made cheaper than natural gas. He explains it as follows:

"I discovered that the atomic movement of the flame and electricity is the same and that it can be insulated. On the other hand, while the automatic movement of magnetism and radiant heat is the same it cannot be insulated. Faraday was the first to discover the



View of Milwaukee, "The Cream City," from the Lake. The city where the Millers' National Association will meet in June, 1889.

A long and animated debate followed the offering of these resolutions, after which they were adopted as above.

Mr. Fusz moved that the Association ascertain the full milling capacity of the country and the extent of home consumption of flour, and surplus for export carried. The report on Domestic Flour Trade was adopted. The following resolution was introduced and adopted:

Whereas, Congress has passed an act for the registration of trade-marks, but has not guarded registered trade-marks from infringement, by penal statute,

Resolved, That it is the sense of the millers of the United States, in convention assembled, that a penal statute of the United States is desirable for the protection of their proprietary trade-mark rights.

A number of complimentary resolutions were passed in honor of those who had served to entertain and facilitate the business of the Association. A resolution was adopted giving it as the sense of the Convention, that the

pocket; I didn't have a friend in this whole country; I didn't know one word of English. And when I now stand here before you, I certainly feel a sort of personal gratification, which you will pardon me for exhibiting. I am thankful to you, and I am thankful to this country which permitted me to rise from that poor blonde-haired Dutch boy to my present position.

One word. I accept the office reluctantly, because I know what an amount of work and responsibility is connected with it at this particular time. There were years when the election of President of this Association did not have the meaning it has to-day. You all know what the Association is expected to do for the millers; and naturally the head of the Association is responsible for the doings of the Association; and I feel the weight on my shoulders. But I shall do the best I can for you, gentlemen.

mechanical effect on flame. My discovery relates to the chemical effect, which is the superoxide of oxygen, generally known as ozone. I placed an iron bar in the bridge wall of a furnace, and by varying the magnetism in the bar found I could distort the flame at will. For this purpose in my experiment I used a dynamo, but afterwards trying the cell system, obtained effects nearly equal to those from a dynamo. Through a process known only to myself, and which I will not patent, the flame produces a magnetic prestige which brings down the oxygen, the life of all fires. When properly fired no smoke is emitted, because the same process exhausts the hydrogen, the one great element of smoke.

THE Webster & Comstock M'f'g Co., 125 Ontario st., Chicago, Ill., have just issued a very handsome catalogue of their specialties, consisting of perforated metals, elevating conveying machinery, etc. The cover of this catalogue is very unique, representing quite well a sheet of stamped metal.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.

SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... \$1.00

To Canadian subscribers, postage prepaid..... 1.00

Foreign subscriptions..... 1.25

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE & CHICAGO, JUNE, 1888.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888.

EXPORTING millers should write to the Riverside Printing Co., Milwaukee, Wis., for the best Flour and Cable Code ever published. There are more copies of this Code in use than of ALL other flour codes published. It is simple and accurate.

HEAD millers in mills having a capacity of 150 bbls. or more will find it to their advantage to send us their addresses with name of firm employing them, etc.

THE EUREKA DUST CATCHER, manufactured by C. N. Smith, Dayton, O., is deservedly attracting the attention of millers everywhere. The principle is simple, the work effective and the cost of the machine reasonable. The machine has been thoroughly tried and pronounced successful. It would be well for millers before buying any dust catcher to investigate the EUREKA.

THE UNITED STATES MILLER is the ONLY milling journal in America that has published four consecutive editions of 10,000 copies, each and is ABLE and WILLING to PROVE it to any advertiser. We feel justified in continuing to issue the 10,000 right along. Our journal is not a large one, but it is a good one and reaches nearly all the flour mills and grain elevators in this country. Advertisers should make a note of this.

MILWAUKEE ITEMS.

MR. AND MRS. EDWARD SANDERSON sailed for Europe on the steamer *Umbria* from New York, June 23, where they will spend the summer.

FAUSTIN PRINZ, manufacturer of the Prinz Cockle Separator and Grain-cleaning machinery, has returned from an extensive trip through the Eastern and Middle States.

HENRY RAU, lately with the Great Western Mfg. Co., Leavenworth, Ks., is now at home in Milwaukee, and is taking a brief

vacation. He has as yet no engagement for future action, but will no doubt soon be in the field "hustling" for some first-class firm.

THE delegation from Milwaukee to the Miller's National Convention in Buffalo, numbered fourteen. No wonder the Convention for 1889 was captured by Milwaukee.

WE have been enabled to make a great many people happy during the last sixty days by the offer made on another page, of the U. S. MILLER for one year and 50 complete novels, good ones, for \$1.75. Of course these novels are simply printed on paper, not bound, but they answer just as well for entertainment, in fact better than if they were handsomely bound. Order at once. Sent post-paid on receipt of price.

SOAP.

Isn't the soap business in this country overdone? That is, from the advertising standpoint? The readers of the magazines and daily papers have been regaled for the past few years with pages and pages of soap advertisements in every shape, form and style imaginable—in poetry and blank verse, accompanied by testimonials from artists, prima-donnas, preachers and tramps, until we are led to infer that instead of cleanliness being next to godliness it is infinitely superior to it. In contemplating the vast amount of money spent in booming the soap industry the philosopher may well stop to ask whether the soap business in toto has been increased thereby, and whether the good people of this commonwealth are really whiter and cleaner than they were a year ago. If the answer is in the affirmative then there is indeed cause of rejoicing. That good has been done cannot be doubted, for soap has not gone up in price, competition has measurably improved the quality, a large amount of money has gone into circulation, and last, but not least, the artistic tastes of the people have been in a measure educated. [?]

The effect of all this advertising has not been confined to one branch of trade, but it is noticeable even in the trade journals of the day, the editors of which we infer have laid in a large supply of soft soap with which to wash away the imperfections of all wares advertised in their columns, leaving only the perfections exposed to view, and the faith in the wonderful cleansing properties of soap is shown in the catalogues of the machinery men who seem to have invested largely in the article.

The intelligent millers of this country are naturally interested in the advent of new machines and milling methods, and due credit should be given to the inventors, but facts and not glucose are potent in this progressive age. Every maker of machines or goods must first be thoroughly impressed with the merits of his goods in order to successfully convince others of their merits, but moderation of expression in calling attention to these merits is not only desirable but productive of more sales in the long run.

The UNITED STATES MILLER takes pleasure in placing on file in its office catalogues and circulars in regard to modern milling machines and appliances, and it is gratifying to note that the leading milling machinery dealers are realizing the truth of the foregoing statement, and are using facts instead of bom-

bast in selling their machines. Among the catalogues recently received, and which the MILLER is glad to acknowledge, is one from Thornburgh & Glessner, Chicago, Ill., which as an example of neat typography, chaste design and freedom from "soft soap" should serve as a model for others to follow.

THE silly jealousy manifested by a few of the milling journals toward the *North-western Miller*, on account of the recognition on the part of the Millers' National Association of its enterprise and general popularity, by designating it the "official organ" of the association, is childish and deserving of no serious consideration. This spirit exists with but few representatives of the milling press we believe, whose publications are in no way adapted to performing the duties, and who, therefore must be moved by envy or some personal spite. The millers who compose the organization felt that it would be of practical benefit to have some paper for their use, which would take an especial interest in the announcements and proceedings of the Association. While all the papers *may* give publicity to such matters, time past (prior to the appointment of the N. W. M. as official organ) evidenced the fact that they do not, and that "every one's business was no one's business." When the Association appointed an official organ great interest was at once manifested by all, and now the milling publications vie with one another in endeavoring to print complete reports of all meetings, etc. Thus the action of the Association has worked for good. The report of the last National Convention's proceedings made by the N. W. M. in their special supplement is produced in a state far ahead of anything heretofore attempted by any paper in the field, and proves their capability for fulfilling the mission assigned to them. The fact that the paper has the largest circulation of any weekly publication in the field, is a strong argument as to the desirability of having it act as the *news* disseminator of the National Association. We can see no possible injury to the milling press from the Association and wish the N. W. M. God speed in their good work. We feel sure that all millers look upon the subject in the same light.

A TIR8EOME WA8TE.

How few merchants and manufacturers make a careful or practical study of advertising. Experience teaches that no firm that ignores advertising will meet with success, and that the measure of success is generally in the ratio of the originality and practical methods of advertising adopted. Business men pretty generally recognize this fact.

Human nature is prone to follow example and a manufacturer who desires to push his wares upon the market, instead of endeavoring to employ some striking and practical method of advertising, will often merely look about to discover what others are doing or have done to attract attention to their goods, and with no attempt at originality will "follow the herd."

An advertiser should try to put himself in the place of his hoped for customers and endeavor to call their attention to his business by methods which would attract him, if he were on the "other side of the fence." Then his efforts will, nine times out of ten prove successful.

The average man, who has something to advertise, will at once decide to flood the country with circulars, - why? - because it has been a custom since "old fogy" times, before the country had its present advantages in the way of special publications or "trade" journals, or because a certain John Jones, whom he knows, has a patent egg-beater regarding which he sends out thousands of circulars annually. - He does not ask said Jones as to the results attained by this class of missionary work as compared with other methods, but concludes to follow the ancient custom.

While at work preparing his circular, some of the Jones literature is handed him with his mail, - consisting, perhaps, of a half dozen sealed letters and two dozen unsealed envelopes of divers sizes, colors and shapes - all evidently circulars. He does not stop to even investigate their contents but with a smothered exclamation at "dratted" advertising circulars in general, consigns them all to the waste basket and returns to his labor, which is to prove a co-nuisance with that he has just heartily condemned.

It would make many an advertiser's heart as sad as it does the printer's and waste-paper man's glad to see the fate of 99 percent of the carefully worded and expensive circulars that are sent through our mails. Who stops to read such matter? - You do not, and why should you expect others to read yours? Circulars are a very expensive medium of advertising as compared with other methods. If one wishes to inform 5000 people regarding his business, he cannot print 5000 circulars, place them in envelopes, address and stamp them for less than \$75.00. We will not take into consideration the fact that probably not more than 100 people will ever see any of them, but merely say that the expense for this advertisement is more than double what he would have to pay to have the same matter printed in a reputable trade journal of 5000 circulation, where it would be seen by probably twice 5000 people, many of whom watch for the paper and read it with interest.

Circulars unquestionably have their place and an important one it is. They may be made very valuable if thoroughly descriptive in nature and circulated where they are wanted and called for. Where a card advertisement is placed in a trade journal, calling attention to certain goods and advising those interested to send for descriptive pamphlet or circular they become very useful.

When a person writes for such matter he wants it, and will read it when received, and results may then be reasonable expected. The promiscuous flooding of the country with circulars has long been a public nuisance and a deplorable waste of money. Keen business men are beginning to see the error of their ways in this direction and we trust that enlightenment will follow generally at no distant day.

NOTICE TO MILLERS AND ELEVATOR OWNERS.

SAMPLE COPIES of this number of THE UNITED STATES MILLER are sent to a large number of flour mill and elevator owners, etc., throughout the United States and Canada from the list as given in *Cawker's American Flour Mill and Elevator Directory*. If there is any mistake in the address, such as style of firm, spelling of name or anything else, please write us stating the correct address. It is

worth a good deal to any miller, big or little, to be correctly represented. It would be best to send your business card and also to state capacity, kind of power used, whether stones or rollers or both are used, etc. Address all communications to E. HARRISON CAWKER, Publisher, Milwaukee, Wis.

A GREAT SUGAR REFINERY.

Mr. Claus Spreckels has decided to build a sugar refinery at Philadelphia which is not to coöperate with the Sugar Trust. Associated with him in this enterprise, says the *Philadelphia Record*, are F. R. Pemberton, Francis B. Reeves, Isaac Hough, Wharton Baker and other well-known business men. In discussing the matter Mr. Spreckels said: "I have decided to erect a refinery here and have pur-

chased the site. No delay will be made in giving out the necessary contracts, and the structure will be built as quickly as possible. I have bought the Merrick property, which has an area of between nine and ten acres. It includes three large wharves, 80 feet wide, and having a frontage of 450 feet on the Delaware river, besides extending 1,500 feet on Reed street. The depth of the water is good, railroad facilities cannot be excelled, and it is altogether a most satisfactory location." The capital to be invested in the refinery, says the journal named above, is stated to be \$5,000,000, of which \$3,000,000 represents the cost of the plant. The capacity of the refinery is placed at 7,000 barrels, or 2,000,000 pounds per day with an estimated annual output valued at \$35,000,000.

50 Charming Complete Novels FOR ONE DOLLAR!

By special arrangement with a leading New York Publishing House we are enabled to make the following extraordinary offer:

Upon receipt of only **One Dollar** we will send, by mail, post-paid, to any address, **Fifty Valuable Books**, each containing a complete first-class novel by a well-known and popular author, as follows:

- A Bartered Life.** By MARION HARLAND. **An Old Man's Sacrifice.** By MRS. ANN S. STEPHENS.
- A Wicked Girl.** By MARY CECIL HAY.
- A Low Marriage.** By Miss MULOCK. *Illustrated.*
- Under the Lilacs.** By the author of "Dora Thorne."
- The Strange Case of Dr. Jekyll and Mr. Hyde.** By R. L. STEVENSON.
- The Lawyer's Secret.** By Miss M. E. BRADDON. *Illustrated.*
- Fair but False.** By the author of "Dora Thorne."
- The Nine of Hearts.** By B. L. FARJEON.
- Doris's Fortune.** By FLORENCE WARDEN.
- A Playwright's Daughter.** By MRS. ANNIE EDWARDS. *Illustrated.*
- Forging the Fetters.** By MRS. ALEXANDER.
- The Póison of Asps.** By FLORENCE MARRYAT.
- Mont Grange.** By MRS. HENRY WOOD.
- Agatha's History.** By MARGARET BLOUNT.
- Out of the Sea.** By CLARA AUGUSTA.
- The Story of a Storm.** By MRS. JANE G. AUSTIN.
- The Evil Genius.** By M. T. CALDOR.
- The Mystery at Blackwood Grange.** By MAY AGNES FLEMING.
- The Last of the Ruthvens.** By Miss MULOCK. *Illustrated.*
- The Morwick Farm Mystery.** By WILKIE COLLINS. *Illustrated.*
- Out of the Depths.** By HUGH CONWAY.
- Retribution.** By MARGARET BLOUNT.
- A Tale of Sin.** By MRS. HENRY WOOD.
- A Fortune Hunter.** By ANNIE THOMAS. *Illustrated.*
- In Cupid's Net.** By the author of "Dora Thorne."
- Wedded and Parted.** By the author of "Dora Thorne."
- The Knightsbridge Mystery.** By CHARLES READ. *Illustrated.*
- Inglede House.** By the author of "Dora Thorne."
- A Passive Crime.** By "THE DUCHESS."
- Rose Lodge.** By MRS. HENRY WOOD.
- A Bridge of Love.** By the author of "Dora Thorne."
- The Fatal Marriage.** By Miss M. E. BRADDON.
- A Queen Amongst Women.** By the author of "Dora Thorne."
- The Blatchford Bequest.** By HUGH CONWAY. *Illustrated.*
- The Curse of Carew.** By the author of "Dora Thorne."
- A Shadow on the Threshold.** By MARY CECIL HAY.
- The Fatal Lilles.** By the author of "Dora Thorne."
- Carrington's Gift.** By HUGH CONWAY. *Illustrated.*
- More Bitter than Death.** By the author of "Dora Thorne."
- Miss or Mrs.?** By WILKIE COLLINS. *Illustrated.*
- In the Holidays.** By MARY CECIL HAY.
- The Romantic Adventures of a Milkmaid.** By THOMAS HARDY.
- A Dead Heart.** By the author of "Dora Thorne."
- Dark Days.** By HUGH CONWAY.
- Shadows on the Snow.** By B. L. FARJEON.
- At the World's Mercy.** By FLORENCE WARDEN.
- Called Back.** By HUGH CONWAY.
- Mildred Trevanion.** By "THE DUCHESS."
- The Grey Woman.** By MRS. GASKELL. *Illustrated.*

As heretofore stated, the **fifty complete novels** enumerated above will all be sent, by mail, post-paid, to any address, upon receipt of only **One Dollar**. This is at the rate of only two cents each. Who ever heard of such a wonderful bargain in literature? Remember that each is a *first-class novel by a first-class author* - they are not short stories - and each one is complete; you get it entire from beginning to end. Each one is published in the form of a neat pamphlet book - handy and attractive to read - and each one is a deeply interesting novel. In the *Seaside* and other "Libraries" these novels cost twenty cents each; hence you will observe that for one dollar we sell the same amount of reading matter for which other publishers charge ten dollars. Can any person, man or woman who is a lover of good literature, afford to miss such an opportunity as this?

For \$1.75 we will send all the above Novels, post paid, to any address in North America and the UNITED STATES MILLER for one year.

Address **E. HARRISON CAWKER,**
Publisher of the "United States Miller," Milwaukee, Wis.

\$1.75.

Publisher **UNITED STATES MILLER, Milwaukee, Wis.**

Send the **UNITED STATES MILLER** for one year and 50 Novels, post paid, for which find enclosed One Dollar and Seventy-five Cents.

Name.....

Post Office.....

County.....

State.....

....., July, 1888.

AN AUTHENTIC BUYERS' GUIDE.

MILL AND ELEVATOR BUILDERS,
MILL FURNISHERS, MANUFACTURERS OF AND DEALERS IN
MILL AND ELEVATOR MACHINERY AND SUPPLIES.

Cards will be inserted under this heading in the "U. S. Miller," not exceeding three lines, copy of paper included, for FIVE DOLLARS per year, cash with order. Additional lines, \$1.00 each, per year.

Edw. P. Allis & Co., Milwaukee, Wis., builders of complete Flour Mills, manufacturers of Flour Mill Machinery, and dealers in Supplies of every description. [Mr. 89.]

Garden City Mill Furnishing Co., Chicago, Ills., Mill Builders, manufacturers full line of Flour Mill Machinery, dealers in Mill Supplies, Bolting Cloth etc., etc. [Mr. 89.]

Jonathan Mills M'g. Co., Cleveland, O., manufacturers of Milling Machinery, dealers in Mill Supplies, Boltng Cloth, etc. [Mr. 89.]

Borden, Selleck & Co., 48 & 50 Lake st., Chicago, Ills., manufacturers of "HARRISON CONVEYOR" for Grain, Malt, etc., etc. [Mr. 89.]

Hassett Mill Furnishing Co., Minneapolis, Minn., manufacturers of "MCANULTY FEEDERS" for Rolls, etc., etc. [Mr. 89.]

John C. Higgins & Son, 165 West Kinzie Street, Chicago, Ills., mfrs. of and dressers of Mill Picks. [Mr. 89.]

H. P. Yale & Co., Milwaukee, Wis., Manufacturers' Agents of Engines and Boilers, New York Leather Belting Co.'s Leather Belting, Dodge Wood Pulley.

Pool & Hunt, Baltimore, Md., manufacturers of Steam Engines, Water Wheels, Flour, Corn, Paper, Saw and Cotton Mill Machinery.

W. J. Clark & Co., Salem, O., manufacturers of "SALEM" Elevator Buckets, etc.

Thornburgh & Glessner, 18-22 N. Clinton St., Chicago, Ills., manufacturers of Mill and Elevator Supplies.

R. C. McCulley, (P. O. Box 214) Lancaster, Pa., manufacturers Cob Crushers, Cooper's Stoves, Castings, Patterns, etc. [Mr. 89.]

B. H. & J. Sanford, Phoenix Iron Works, Sheboygan, Wis., manufacturers of the "IMPROVED WALSH DOUBLE TURBINE WATER WHEEL." [Mr. 89.]

John C. Kilner, York Foundry and Engine Works, York, Neb., Mill and Elevator machinery of all kinds, Engines, Boilers, Pulleys, Shafting, etc. [Mr. 89.]

The Gutta Percha and Rubber Mfg. Co., 159-161 Lake st., Chicago, Ill., Belting and Rubber Goods. [Mr. 89.]

The Avery Elevator Bucket Co., sole owners and manufacturers of Seamless Steel Elevator Buckets, Wason, Lake and Dart sts., Cleveland, O. [Mr. 89.]

Richmond Mfg. Co., Lockport, N. Y., manufacturers of Grain Cleaning Machinery, Bran Dusters, etc. [Mr. 89.]

N. Y. Belting and Packing Co., N. Y. Leather Belting Co., Goulds & Austin, Agents, 167 and 169 Lake Street, Chicago. [Apr. 89.]

Weller Bros., 94 Wendell st., Chicago. M'f's Mill and Elevator specialties, Cups, Boots, Spouts, Steel Conveyors, Power Grain Shovels; dealers in Cotton and Rubber Belting, etc. [Apr. 89.]

The Nordyke & Marmon Co., Indianapolis, Ind., Flour Mill and Mill Machinery builders, and dealers in Mill Supplies of all kinds. [May 89.]

The Case Manufacturing Co., Columbus, O., Millbuilders and manufacturers of a full line of Flour Mill Machinery, Mill Supplies, etc. [May 89.]

The Shields & Brown Co., 240 and 242 Randolph st., Chicago, and 143 Worth st., New York. Mfrs. of Sectional Insulated Air Coverings for steam, gas, and water pipe, etc. [May 89.]

W. G. Avery M'g Co., 10 Vincent st., Cleveland, O., Specialists: Avery Lever Belt Punches, Avery Seamless Elevator Buckets, Belting, Elevator Bolts, &c. [May 89.]

SECOND HAND MACHINERY WANTED.

Any parties having second hand engines, boilers, pumps, etc., are requested to send lists and prices f. o. b. to the undersigned. Any parties having mills for sale, rent or exchange, are requested to correspond with me. Any one desirous of purchasing second hand mill machinery or a mill, farming land or other property, will find bargains by correspondence with me. Address

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E. Sanderson & Co., "Phoenix Mills," Milwaukee, Wis. U. S. A. Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [Apr. 89.]

Bernhard Stern, "Jupiter Mills," Milwaukee, Wis. Roller Mill. Hard wheat Patents. Principal brand, "Jupiter." [Apr. 89.]

Faist, Kraus & Co., "Duluth Roller Mill," Milwaukee, Wis., Manufacturers and Exporters of choice spring wheat flours. Daily capacity 1500 barrels. [May 89.]

Russell, Andrews & Birkett, Penn Yan, N. Y. Manufacturers of roller process Rye and Buckwheat flour. Absolute purity guaranteed. Write for prices. [Apr. 89.]

Texas Star Flour Mills, Galveston, Texas. Patents: Tidal Wave, Neptune, etc. Extra Fancy: Sea Nymph, Undine. Extra Choice: Sea Jewel, Melite. Family: Sea Pearl, Hera.

Grand Forks Roller Mills, Grand Forks, Dak. Situated in the heart of the Red River hard wheat section. Correspondence solicited.

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Major Bros. & Co., Produce Exchange, New York, Shipping and Commission, Flour, Grain and Provisions.

W. K. Sherwood, Flour and Grain Commission, 18 South Commercial Street, St. Louis, Mo. [Apr. 89.]

L. R. Hurd, Shippers of Minnesota and Dakota Spring Wheats, Minneapolis, Minn., Possessing a thorough and practical knowledge of the Economical and Flour Producing Qualities of all wheats grown in the northwest, I am enabled to make purchases with special reference to these qualities.

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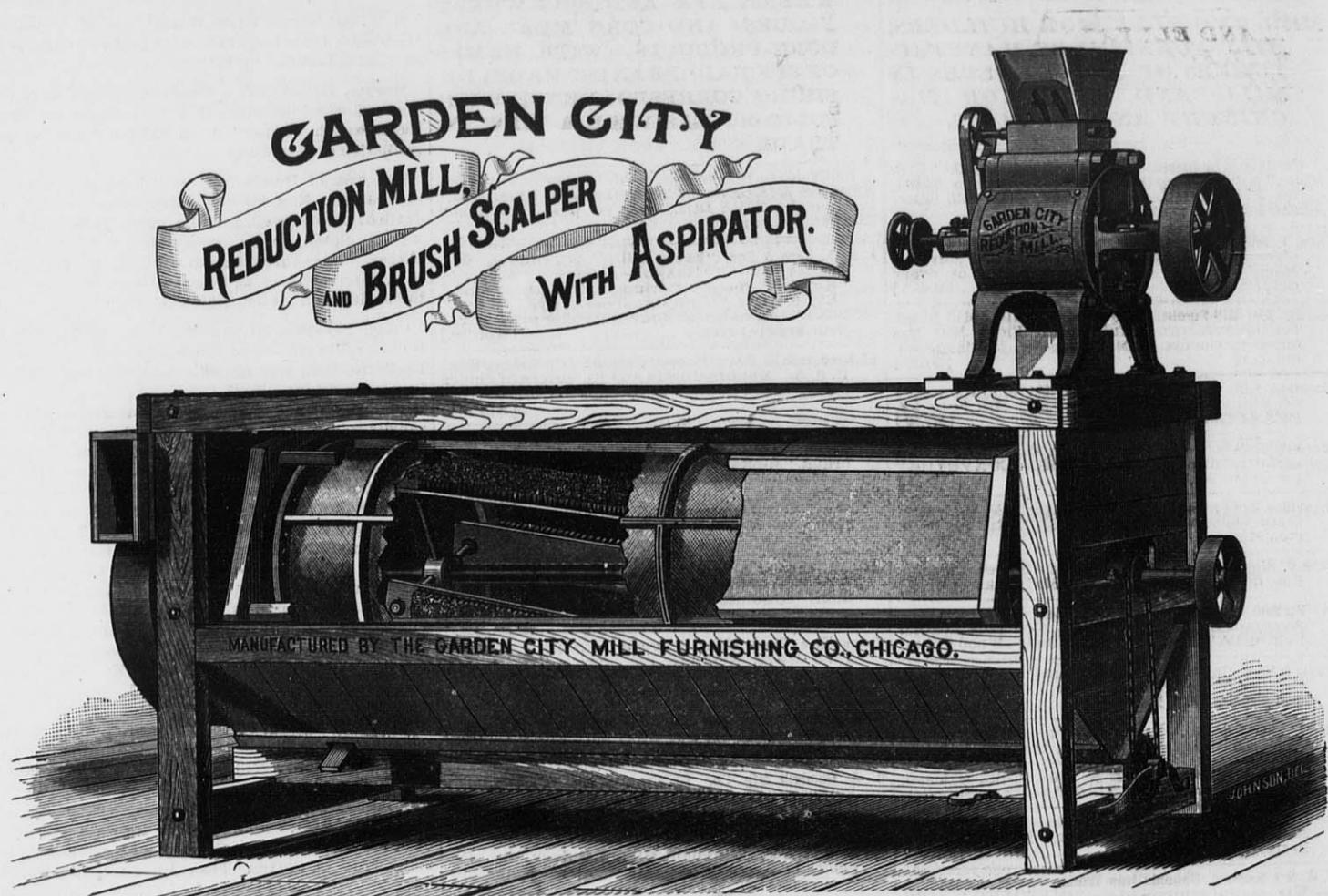
NEWS.

H. W. CALDWELL, 131 W. Washington st., Chicago, Ill., has filled very large orders for Caldwell conveyors during the month.

MESSRS. THORNBURGH & GLESSNER, Chicago, Ill., have nearly doubled the capacity of their shops and office rooms and have fitted up a sample room for the exhibition of specialties.

THE FIRM OF HOWES & EWELL, doing business at Silver Creek, New York, has been dissolved by the death of Carlos Ewell, and the business of said firm will be closed up by Simeon Howes as surviving partner, who is authorized to settle all claims owing to or from said firm, and who will hereafter continue the business on his own account.

CHAS. PFEFFER, of Eureka, Dak., is building a 100 bbl. roller mill.—The mill of Elwell & Babcock at La Porte, Ind., was recently burned. Loss \$25,000; insurance \$11,000.—W. H. Officer's mill, near Austin, Minn., which was damaged by the late floods, is being rapidly rebuilt.—Jonathan Gregson has sold his mill near Austin, Minn., to Smith & Deppings.—The Climax Milling Co., of Hillsboro, Ore., has been incorporated with a capital stock of \$20,000. The incorporators are Richard Constable, James M. Smith, D. A. Smith and H. E. Smith.—The Tilden Milling Co., capital stock \$150,000, incorporated by Henry Austin, Leonard Buchler and George Nater, are about to build a mill in the close vicinity of Chippewa, Wis.—John A. Moreman is building a 100 bbl. mill at Plano, Tex.—A mill is about to be built at Haskell, Tex., by Tyson & Carter.—C. J. Lamson & Co. are building a flouring mill at Alvaton, Ky.—The Alma Milling Co. are building a 125 bbl. roller mill at Alma, Wis.—Hay Springs, Neb., wants a 50 bbl. flour mill, and the citizens of the place are raising \$3,000, which is to be paid as a bonus to the builder.—The Phillipsburg Roller Mill Co. has been incorporated at Phillipsburg, Kan. Capital stock \$10,000.—A 70 bbl. mill is being built at Sturgis, Ky., by D. A. Brooks, Jr., & Co.—John F. Blake succeeds the firm of C. L. & Blake, Canton, O.—A 75 bbl. roller mill is being built at Clifton, Tex., by an incorporated company, with a capital stock of \$12,000. The officers are: W. S. Helms, pres., J. G. Williams, sec'y, G. B. Helms, treas.—The Le Grand Milling Co., with Mr. Boehmle as superintendent, are re-erecting at Oakes, Dak., the flour mill removed from Marshalltown, Ia. It will have a capacity of 150 bbls.—The flour mill at Echo, Ore., owned by J. H. Koritz, was recently burned. Loss \$30,000.—The mill of Hastings & Locke at Gilead, Me., was recently burned. Loss \$8,000; insurance \$2,000.—J. S. Beaty & Co., millers at Penfield, N. Y., have been succeeded by W. H. Woodhull.—Among the milling companies lately incorporated are The Lostine Milling Co. at Lostine, Neb. Also the Freemont Milling Co. at Freemont, Wash. Ter.—W. H. Hoppee's mill at La Porte, Ind., was recently burned. Loss \$8,500; insurance \$6,000. The farmers of Elwell, Mich., and vicinity are discussing the matter of forming a stock company for the purpose of building a flour mill.—The mill of J. Willman at Milford, Mich., which was lately burned will be rebuilt.—G. M. Longwell, of Paw Paw, Mich., are about to build a mill at that place.—Wells & Sledd are building a flour mill at Wadesboro, Ky.—The Mattingly Milling Co. has been incorporated at Vicksburg, Miss.—A. Whitener & Son, of Hickory, N. C., whose mill was lately burned will rebuild.—A 75 bbl. roller mill is being built at Thomasville S. C., by R. W. Thomas & Co.—The St. Jo Milling Co., of St. Jo, Tex., are building a 100 barrel roller mill.—The Crystal Flour Mill Co., Weatherford, Tex., will increase the capacity of their mill to 300 bbls. being about double its former capacity.—J. & C. Wipf, of Iola, Wis., are about to build a roller mill of 75 bbl. capacity.—Burned: Rumbaugh & Brinker's flour mill at Greensburg, Pa. Loss \$26,000; no insurance.—Burned: Crowder Milling Co.'s mill and elevator at Edwardsville, Ill. Loss \$20,000; insurance \$8,000.—A flour mill is to be built by the farmer's alliance at Rockmart, Ga.—W. M. Johnson & Bro., of Hickman, Tenn., have remodeled their mill to the roller system and have a capacity of 100 bbls.—At Friendly, W. Va., J. Shrake & Son have about completed a 200 bbl. full roller mill.—D. L. Crossman's mill at Williamsburg, Mich., was lately burned. Loss \$8,000; insurance \$7,000.



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A. J. SHAW.

II.

The article on Shafting in Appleton's Cyclopedic of Applied Mechanics, Edition of 1880, on given rules for the determination of the diameters of wrought iron shafts, gives values widely different from those given by the table and rules in the preceding article. The rules in the cyclopedic article above referred to, as well as a table accompanying them, are taken from a "Manual for Mechanical Engineers," by D. K. Clark, an English authority, according to whom a 1 inch shaft running at the rate of 1 revolution per minute is capable of transmitting but $\frac{1}{150}$ of 1 H. P., "within fair working limits"; or, in other words a 1 inch shaft must run 150 revolutions per minute in order to transmit 1 H. P. with safety, when subjected to torsional or twisting stress only. This table varies so widely from standard practice as well as from the values given by other authorities that the writer can but consider it entirely erroneous and misleading. It will not require much argument to convince millwrights that rules which call for a shaft 5 $\frac{1}{2}$ inches in diameter to transmit 100 H. P. at 120 revolutions per minute are wrong somewhere, when it is noted that this diameter is given not for shafts carrying pulleys, but for bare shafts used for transmission only.

The diameters of ordinary mill shafting, carrying pulleys or gears, must be made, as has been stated, from 25 to 33 per cent. greater than the diameters given by the table and rules in the preceding article, on account of the side strains set up by the pull of the belts, weight of pulleys and lift of gears. The amount of this increase is dependent, however, to a large extent, on the distance between the bearings. If the bearings are wide apart, and the shaft carries heavy pulleys near the center of the spans, or as is usually the case, the pulleys are distributed more or less irregularly along its entire length, the diameter of the shaft must be considerably greater than if the bearings are near together. This fact is recognized in the general practice of placing heavy pulleys near the hangers, and if the weight and strain is very great, putting a hanger on each side of the pulley. Shafts so located that all the belts lead in one direction, as is the case when the shaft runs along a wall, should be made heavier than if the belts lead off in all directions, as would be the case with a shaft running down the center of the building.

In many cases the approximate side pull or load can be determined, and when this is known, the increase in diameter necessary to sustain it, can be readily determined, by the following table.

TABLE II.

When the Ratio of bending to twisting force is	the diameter taken from the preceding table is to be multiplied by
.25	1.09
.50	1.17
.75	1.26
1.00	1.34
1.25	1.42
1.50	1.49
1.75	1.56
2.00	1.62
3.00	1.83

In order to use this table it is necessary to know the twisting force or, as it is technically termed, the "torsional moment" on the shaft for a given power transmitted. This torsional moment may be found by the following rule.

Divide the horse power transmitted, by the number of revolutions per minute, and multiply the quotient by 63,043. The product will be the twisting force in inch pounds.

It is sufficiently accurate for all practical purposes to take 63,000 as the multiplier, instead of 63,043 as given in the rule.

This twisting force divided by the radius of the pulley or gear through which the power is transmitted will give the actual pull on the belt or load on the teeth of the gear.

EXAMPLE: What is the load on the teeth of a gear 30 inches diameter transmitting 50 H. P. at 150 revolutions per minute?

$50 \div 150 = \frac{1}{3}$. $63,000 \times \frac{1}{3} = 21,000$ inch pounds torsional moment on the shaft. $21,000 \div 15$, (the radius of the gear) = 1,400 pounds, the load at the pitch line.

If the gear be midway between the bearings the bending moment or side pull due to the load which it sustains, may be found by multiplying that load by one fourth the distance between the bearings in inches. If the gear be midway between the center of one bearing and the center of the span the bending moment may be found by multiplying the load by three-sixteenths the length of the span; while if the gear be "overhung" or on the end of the shaft outside the bearing, the bending moment will equal the load on the gear multiplied by the length of the overhang, from the center of the bearing.

EXAMPLE: What will be the bending moment, or tendency to bend the shaft, due to the gear cited in the last example, for each of the positions given above, the distance between bearings being 6 feet and the overhang 10 inches?

The load on the gear was found to be 1,400 pounds.

$1,400 \times \frac{7}{16} = 25,200$ inch pounds, the bending moment with the gear in the center of the span.

$1,400 \times \frac{3}{16}$ of 72 = 18,900 inch pounds, the bending moment when the gear is midway between the bearing and the center of the span, or 18 inches from the bearing.

$1,400 \times 10 = 14,000$ inch pounds, the bending moment for the overhanging gear.

EXAMPLE: What diameter of shaft will be required in each of the above cases?

The H. P. \div number of revolutions = 50 $\div 150 = 333$. By reference to the table in the preceding article the diameter of shaft corresponding to .35 the quotient nearest to the above, is found to be 2.32 inches or, say, 2.3 inches. The torsional moment has been found to be 21,000 inch pounds.

21,000 : 25,200 (the bending moment) :: 1 : 1.2. The nearest number to this in the first column of Table II, is 1.25, the multiplier corresponding to which is 1.42, or say, 1.4 for a ratio of 1.2 to 1.

$2.3 \times 1.4 = 3.22$ inches the diameter required when the gear is in the center of the span. In like manner the diameters corresponding to the other cases are found to be 3 inches and 2 $\frac{1}{2}$ inches respectively.

For general mill-shafting the diameters cannot be calculated in this way, as the shafting must be of uniform diameter for at least quite a part of its length; besides this, the side strains are usually unknown quanti-

ties and are likely to be changed from time to time on account of changes of location of machinery, and from other causes. On this account the shafting must be made sufficiently strong to meet any contingency likely to arise in regular practice, which strength is provided by the increase of 25 to 33 per cent over the diameter due to torsion only.

Nevertheless, cases frequently arise in which it is desirable to be able to compute the exact diameters required, which can be done with sufficient accuracy for most cases by the rules given above.

Another very commonly accepted rule for the diameter of mill-shafting is:

Divide the H. P. by the number of revolutions per minute, multiply the quotient by 50 and extract the cube root of the product. This root will be the diameter required.

For jack-shafts carrying gears the multiplier will be 100 instead of 50.

The above rules and data are for turned wrought-iron shafting, more of which is in use than of any other kind, although it is in many respects inferior to shafting of drawn steel or cold-rolled iron.

Cold-rolled iron shafting was introduced by Jones & Laughlin, of Pittsburgh, although, the patents having expired, it is now made by several manufacturers. It possesses many advantages, as may be seen by the following summary from a report by Prof. Thurston:

1. The process of cold rolling produces a very marked change in the physical properties of the iron thus treated. (a) It increases the tenacity from 25 to 40 per cent., and the resistance to transverse stress from 50 to 80 per cent. (b) It elevates the elastic limits, under both tensile and transverse stresses, from 80 to 125 per cent.

2. Cold rolling also improves the metal in other respects. (a) It gives the iron a smooth bright surface, absolutely free from the scale of black oxide unavoidably left when hot rolled. (b) It is made exactly to gauge, and for many purposes requires no further preparation. (c) In working the metal the wear and tear of the tools is less than with hot-rolled iron, thus saving labor and expense in fitting. (d) The cold-rolled iron resists stress much more uniformly than the untreated metal."

Cold-drawn steel shafting is made by drawing steel bars, cold, through dies by means of powerful hydraulic presses, and is similar to and has the same advantages as cold-rolled iron.

On account of its greater strength cold-rolled or steel shafting need be but $\frac{1}{2}$ the diameter necessary for wrought iron transmitting the same power, although it will be better to make the diameters the same as for wrought iron turned shafts, to gain the advantage of stiffness.

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Our valuable contemporary, *The Locomotive*, in a recent number, says:

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(Continued on Page 31.)

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ers was of course in order. The following are some of the incidents reported as a result of the examination: In one place a pile of ashes about four feet high was found banked up against the side of the boiler. The engineer was asked why they were there, and he replied that "the boiler was sweating a little," and that he had put them there to keep the water from coming out of it. The ashes were immediately removed and four or five holes were found in the boiler through which the water was oozing. The boiler was under a pressure of sixty pounds at the time. Over thirty people were employed in the immediate vicinity of the boiler. Some ludicrous answers were made by candidates for engineers' licenses. For instance, one candidate when asked the dimensions of the boiler he was running, replied, "two and one-half feet high, one foot in diameter, and 120 one-and-one-half-inch tubes in it." It was afterward ascertained that the boiler was forty-eight inches in diameter and eleven feet long. No license was given in this case. Another applicant averred that the boiler he was running "was twenty-four feet high, eight inches in diameter, and had a three-foot-square grate under it." This boiler proved to be about ten feet high and forty inches in diameter. In one place where there was a battery of five boilers the steam guages were found indicating all the way from 38 to 100 pounds, when the pressure on the boilers was about 80 pounds. Many other instances of gross ignorance and neglect might be cited, but the above are sufficient to show the alarming state of affairs which prevails in some places.

PUBLICATIONS RECEIVED.

A TREASURE.—If there is one thing above another that rouses the admiration of a genuine lover of the "art preservative" it is the inspection of a book containing the elements of fine engraving, beautiful type, perfect press-work, excellent ink, well finished paper and faultless design.

Such a treat has been given us by those eminent architects, Messrs. Carrere & Hastings, of 3 Bowling Green, New York. These gentlemen drew the plans and superintended the construction of those hotel palaces in St. Augustine, Fla., The Ponce de Leon, The Alcazar, and The Casa Monica. Inside and outside these buildings are pronounced to be as nearly perfect in architecture, elegance and convenience as human skill of the present day can produce. Visitors to these hotels, experts, who have become familiar with architectural beauties in this and foreign lands, find little to condemn and much to praise in these structures. In placing the description of these Florida Hotels before the public Messrs. Carrere & Hastings have sought the aid of The Gillis Brothers & Turnure of The Art Age Press, New York, and the result is one of the most elegant books for advertising purpose that it has ever been our pleasure to inspect.

OGILVIE'S POPULAR READING.—We have received a copy of Number Forty-two of Ogilvie's Popular Reading—containing eight stories—all complete. All of the stories are printed in large type with handsome colored cover. We recommend our readers to buy the book and see for themselves. The price is only 30 cents, and is for sale by all newsdealers, or will be sent by mail, post-paid, on receipt of price, by J. S. OGILVIE, Publisher, 57 Rose street, New York.

EL COMERCIO, a Spanish commercial paper, published by J. Shepherd Clark & Co., 178 Broadway, New York, for the benefit of American exporters to Spanish speaking countries, is an attractive, able and well patronized paper. We take pleasure in commanding it to exporters of milling machinery.

We recently received a copy of the new catalogue of the Jonathan Mills M'f'g Co. of Cleveland, O. It is full and explicit in its description of the Mills Boltting reels and other specialties manufactured by the Company and also contains a great number of valuable hints to owners of large and small mills. This catalogue will bear careful study. Sent free on application if this paper is mentioned.

THE PUMP CATECHISM, by Robert Grimshaw, M. E., etc., published by the Practical Publishing Co., Room 3, No. 5 Dey st., New York. Price, post paid \$1.00. This work is a practical help to runners, owners and makers of pumps of any kind, covering the theory and practice of designing, constructing,

erecting, connecting and adjusting. It is a valuable work for the purpose designed.

CIGARETTE SMOKING.—This subject has been one on which many have written and spoken. Nearly all condemn the practice of cigarette smoking in unstinted terms, but—the habit is becoming more and more extended every day. Is this universal condemnation justified? We do not believe it is. For a century at least male and female residents of Spanish and French speaking countries have indulged in this now so called "pernicious habit" but we never heard of its doing any great amount of physical or moral injury to its users in those countries. In some manner the habit became introduced in the United States and now almost countless millions of good, bad and indifferent cigarettes are consumed. They are cleanly, being made by machinery and we believe are the least objectionable forms in which tobacco can be used. Being generally very mild the user frequently gets in the habit of inhaling (drawing into the lungs) the smoke and this causes all the injury which can be attributed to cigarette smoking. Of course any habit can be carried to excess whether it is eating, drinking, smoking, bathing, taking exercise or anything else, that human beings are in the habit of doing, and the same rule will doubtless apply to cigarette smoking. Manufacturers of cigarettes have resorted to various means to advertise their respective goods, some commendable and others the opposite. The most unique, original and really valuable scheme we have noticed is that of W. Duke Sons & Co., of Durham, N. C. and New York City. This firm gives with each package of "CAMEO" cigarettes a card handsomely printed in colors, showing the flag, coat of arms and ruler of some one of the many nations of the earth. A collection of these cards is not only interesting but instructive. It must have cost much time, labor and money to complete such a task, but doubtless the manufacturers will in time be handsomely rewarded.

Absorption of Moisture by Spring Wheat Flour during transit between Minneapolis and Glasgow.

Mr. W. A. Thoms, of Alyth, Scotland, has had considerable to say in the British press on the above and kindred subjects. It appears that sometime since a Glasgow firm of flour importers expressed the opinion in an American milling paper, that if 273 pounds of spring wheat flour were put into a sack at the mill in Minnesota, that during the trip to Great Britain it would absorb moisture to the extent of 7 pounds on an average, so that the sacks would weigh out 280 lbs. i. e., the weight required. In a communication to the *British Baker and Confectioner*, of May 1, Mr. Thoms writes on this subject as follows:

I have said that I could not place the absorption higher than 3 lbs., that is on the average. But to settle the question, or obtain some reliable right on it beyond mere assertion, I asked, last January, the agents in Scotland for the well-known and highly respected firms of American millers and flour exporters, Messrs. Washburn, Crosby & Co., and the Hon. E. O. Stanard, St. Louis, to get for me from these firms a number of sacks of flour, weighing each 100 lbs. gross at the mills, and as a special favour, that a member of the firm should see the actual weighing done. Both of the firms named, kindly consented to do so. About the end of February, Messrs. Washburn, Crosby & Co., advised their Glasgow agents that they had sent on for me, after being weighed in the presence of a member of the firm, 28 sacks of 100 lbs. each of patent flour. The flour reached Glasgow during the first week of April, and was weighed from the ship, and the weight marked on each sack. Fourteen of the sacks were sent to a Glasgow store, to remain for a few weeks, to see if they would further gain in weight by absorption, the other fourteen were sent on here to Alyth. On weighing the sacks here, I found no appreciable difference in weight from that marked on them at Glasgow. The following is the weights-note from the master-porter's department of the shipping company:

Weights of Sacks, sent to Alyth.	Weights of Sacks sent to Store, Glasgow.
100½ lbs.	100½ lbs.
100½ "	100½ "
101 "	100½ "
100½ "	100½ "
101 "	100½ "
101 "	100½ "
101 "	100½ "
101 "	101 "
100½ "	101 "
100½ "	100 "
100½ "	100½ "
101 "	101 "

Average gain in weight per 100 lbs., 11 ozs.

Average gain in weight per 280 lbs., 1 lb. 15 ozs.

This absorption gain is low, and may be accounted for when we remember that the flour would be on rail between Minneapolis and New York during the time of the great blizzard, and low temperature in the ship between New York and Glasgow. The air in a freight car during such a blizzard would be almost free of moisture capable of absorption, the flour would be chilled—deadened, and this might hinder absorption in the ship, hold, if the mean moisture there exceeded that of the flour. It may be said that this reasoning, if it holds good, destroys the value of the test. I do not think so. But it shows that the absorption weight cannot be fixed with certainty. It is governed, first, by the moisture present in the flour when sacked; and second, by the atmospheric moisture and temperature.

The 28 sacks of 100 lbs. promised by Mr. E. O. Stanard are not yet received, but I will publish the weights after they reach me, and also the weights of the 14 sacks spring flour sent to store in Glasgow.

[We shall watch for the publication of the figures promised, and publish them as soon as obtained in the U. S. Miller.]

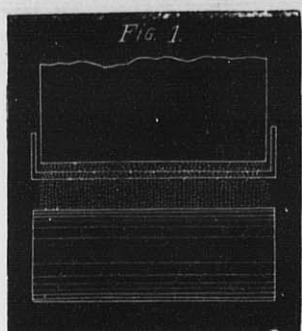
On this subject Mr. William Jago, the well known English Chemist who has paid especial attention to the chemistry of the milling and baking trades writes to the same journal as follows:

I have also, at various times had occasion to determine the moisture of both wheats and flours, and, as some sort of contribution to this shortage question, give here the results of some of my analyses:

	Moisture.
Pillsbury's Best Flour,.....	13.00
Pillsbury's Bran Flour,.....	13.10
Porter's Strong Bakers Flour,.....	11.44
Porter's Standard Flour,.....	11.15
Porter's Boss Flour,.....	11.36
Ure & Sons' Minnesota Straight (Glasgow milled),.....	12.70
Glasgow Milled Spring Straight,.....	12.71
Glasgow Milled Minnesota Pat'nt,.....	12.60
American analysis by Richardson:	
Pillsbury's Baker's Flour,.....	12.18
Pillsbury's Patent Flour,.....	11.48

In cases of analyses of different flours, it is difficult to institute comparisons, because the flours may be selected under different conditions, but, so far as comparisons are possible, there is no doubt evidence of American flours being damper in this country than when shipped on the other side; thus in the case of the Pillsbury's best, I found a sample of it obtained in this country contained 13 percent. of water, while Richardson, who has published analyses of this brand of flour made in America, reports it to contain 11.48, or practically 11.5 percent. There is here a difference of 1.5 percent. increase of moisture, an amount equivalent to 4.2 lbs. per sack. Comparing the two lower grades of flour with each other, the increase amounts to only 2.5 lbs. per sack, while the average of the two is 3.3 lbs.

But in connection with this there is, I think, a point of considerable importance. American flours are in many cases preferred to those of home millers because of certain properties they possess, among these that of being drier is one. Allowing flour to thus absorb water and making the baker pay for the absorption is one of the methods calculated to injure the reputation of American flours among bakers, and thus to prejudice their sale. The fact is, that under normal conditions no such great absorption of water takes place, and the flour weighed in at 273 lbs. would arrive in this country short-weighed.



Uniform Sheet as fed by our
McAnulty Automatic Force Feeders

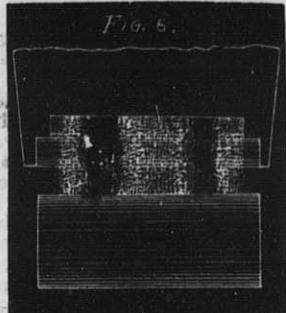
CAPACITY INCREASED 10 TO 20 PER CENT.—See Sidle, Fletcher, Holmes & Co.'s Letter
PATENTS INCREASED 4 PER CENT.—See Galaxy Mill Co's Letter.

HASELTINE · MILL · FURNISHING · CO.,

MINNEAPOLIS, MINN.,

MANUFACTURERS OF

MCANULTY'S



Irregular Sheet as fed by the
Feed Roll with Automatic Gate

Automatic Force Feeders!

MCANULTY'S 1ST BREAK REGULATING FEEDERS AND DISTRIBUTORS.

OUR GUARANTEE

Is to increase capacity of full Roller Mills 10 to 20 per cent. To save from 3 to 8 lbs. of wheat per barrel of flour manufactured. To increase patents 2 to 5 per cent. without requiring additional power.

Fills Your Guarantee of 20 Per Cent. Increased Capacity

From SIDLE, FLETCHER, HOLMES & CO.,
Minneapolis.

Your Force Feeders fill your guarantee to increase the capacity 20 per cent. as your system enables us to treat our sixth Brake stock better with four double Allis mills than we formerly could with five double Allis mills.

Please arrange your system on our "Red Dog" Stock.

TEN MORE.

Fills a Guarantee to Increase Patents 4 Per Cent.

From GALAXY MILL CO.,

A. C. LORING, Manager.

They have enabled us to increase our patents 4 per cent. Our grades are improved, our clean-up and yields materially bettered. Please deliver us ten more.

MARISSA ROLLER MILLS, |
Marietta, Ill., March 7th, 1888 |

Enclosed please find draft for \$100.00, to cover bill of January 28th, 1888. We have never put anything in the mill which has given us as much satisfaction in operating as these Feeders, bought from your Mr Clark. I hope you will have good success in future with them.

MEEK, FINGER & CO., Props.

Sedalia, Mo., February 27, 1888.

I am now using McAnulty's Automatic Force Feeders, and I can say that it is the finest feeder ever manufactured, and I have used a number of different automatic feeders. I am now taking out the Craig and putting in the above feeders. *The McAnulty's have no superior, nor can they be any more perfect.*

B. S. REMBAUGH.

Millersburg, O., Feb. 18, 1888.

We have your system of Feeders on our Rolls throughout our mill, and can safely say there is no

feeder made to equal the McAnulty on any and all kinds of Stock, from first brake to the softest low grade. We also have one of your Feeders on our Corn and Feed Roll, which surprised us when we got it to work. It increased the capacity and gives us an even feed the whole length of the roll. We are more than pleased with them.

MAXWELL, HECKER & POMERINE.

Office of THE TERRELL MILLING CO., |
Terrell, Texas, July 14th, 1887. |

Hazelton Mill Furnishing Co., Minneapolis, Minn.
Gentlemen:—The McAnulty Force Feeder shipped us has arrived all right, and we are well pleased with it. You can ship us the following order: Five (5) Feeders, to be used on 9x18 Double Stevens Roller Mills, speed 400, diameter of shafts 2 1/2". One (1) Feeder same as above, with roll shaft 2 1/2". Fit First Brake with your Weighing Regulator. Please ship at once, and greatly oblige,

TERRELL MILLING CO.
A. J. Childers, Pres.; T. M. Kell, Sec'y;
E. J. Lockhead, Supt.

THE "SALEM"



is the original round cornered Elevator Bucket and its shape is broadly covered by a foundation patent.

All buckets of the same shape, though produced by a different process, trespass upon our rights, and render dealers and users as well as manufacturers liable for damages.

AVOID INFRINGEMENTS.

All legitimate "Salem" Buckets are plainly marked with the word SALEM.

W. J. CLARK & CO., Sole Manufacturers, SALEM, OHIO.

THORNBURGH & GLESSNER, Gen'l Agents, CHICAGO.

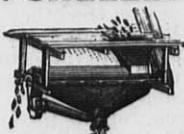


"TRIUMPH" CORN SHELLER

CAPACITY
2000 BUSHELS PER DAY.
Shells wet or dry corn.

CHEAPEST AND BEST SHELLER.

PAIGE MANUF'G CO.,
No. 12 Fourth St., Painesville,
[Please mention this paper when you write to us.]



WANTED!

We want the addresses of

HEAD MILLERS

in all mills having a capacity of 150 barrels of flour per day or more with short description of mill, system, power used, etc.

We want the addresses of

MILLWRIGHTS

who take contracts for millbuilding, repairing, etc., and who would take orders for flour mill, elevator and malt house machinery and supplies.

We want the addresses of

ENGINEERS

having charge of large engines in flour mills, elevators, breweries and malt houses.



CAWKER'S AMERICAN FLOUR MILL AND ELEVATOR DIRECTORY FOR 1888, issued March 3, is meeting with much praise from all departments of the trade. While not claimed by the publisher to be perfect, it answers FULLY the requirements of the trade. It is the only list published. The demand is limited and the price (Ten Dollars per copy) is cheap, considering the labor required in compiling, printing and selling. It contains lists of flour mill and grain elevator owners, miscellaneous kinds of mills such as corn, rye, oatmeal, rice and feed mills, millwrights, flour brokers and dealers in various sections of the United States and Canada, and a good list of European flour and grain importers. Kind of power used, rolls or stones, capacity and millers supposed to be worth \$10,000 or more are indicated in thousands of cases.



SPECIAL NOTICE.

B. F. Ryer & Co., 179 Park Ave.,
Chicago, Ill., has been appointed by J.
H. Ernst & Co., of New York City, Sole
Agent for Chicago of the well-known

Bodmer Bolting Cloth.

Orders for Cloths and making up
promptly attended to. Address as
above.

[From our own Correspondent.]
OUR BALTIMORE LETTER.

The prosperous condition of affairs noted here in my last report has given way to demoralization.

The Baltimore flour market at this writing is in a very unsatisfactory state.

While stocks are light and values fully 25 cents per barrel lower than a month ago, there is, notwithstanding these inducements, no demand whatsoever from any quarter, consequently, the situation here can better be imagined than described. Of course this dullness and depression in flour is the result of the collapse in wheat, together with the fact that harvest is so nearly upon us, the season when all dealers move cautiously, and with supplies only barely sufficient to bridge them over until the "new" is ready for market.

European and South American shippers continue idle, and evince no disposition to anticipate orders.

City mills are running only moderately, preferring to go into the new crop with the raw material on hand rather than with an accumulation of old flour.

The wheat market has acted precisely as was predicted in this letter last month.

Those who were bears at 85 cents on the seaboard, turned bulls at ten cents higher, and the manipulators, after loading up the "lambs" through chicanery, and on absurdly fictitious reports, are now having a regular picnic of it, by reaping wholesale profits.

The bottom now seems to be out of this commodity.

It is indeed very sick.

But is not the darkest hour just before dawn?

Is it not possible for these "brilliant prospects" to be discounted which are now heralded all over the land?

Are they not the tactics of these self-same "wreckers," to induce the masses to sell short, at existing rates, such quantities of wheat as shall be impossible to deliver, and for which in turn they will exact exorbitant figures? I believe this is their game. No one in the world is more easily imposed upon than the average speculator.

He believes black is white, and *vice versa*, if so and so, says so. He never thinks for himself, but is blindly led by the nose until he finds himself sprawling in the pit of adversity, a predicament often reached through the instrumentality of some kind friend(?) whose superior advice and judgment, under the garb of benefactor, enables him to succeed in transferring the "boodle" of his victim to that of his own pocket.

Surely "the way of the transgressor is hard" but it doesn't begin to compare with the way of the speculator.

The weather in this section is excellent for harvest.

There is every indication of a large yield of wheat in the State, and good receipts of the new crop may be expected in Baltimore by the 10th of July.

STOCK OF GRAIN IN THE ELEVATORS THIS DAY, AS COMPARED WITH CORRESPONDING DATE LAST YEAR;

Corn.	Description.	This day.	Same time last year.
No. 2 White.		4,133	.....
Yellow.		13,523	.....
Mixed.		6,837	107,238
Steamer Mixed.		16,573	.....
Special Bin.		7,844	911
Total.		48,910	108,149

Wheat.	This day.	Same time last year.
No. 1 Red Winter.	.....	4,170
" 1 Maryland.	.....	3,254
" 2 Southern.	.....	18,185
" 2 Red Winter.	256,390	274,327
" 3 "	775	1,006
Mixed Winter.	564	.....
Steamer No. 2 Red Winter.	2,631	15,468
Special Bin.	59,873	60,152
Spring.	113,860	103,542
Total.	433,968	480,104

We quote the range of the flour market as follows:

Ohio, Indiana and Illinois Super.	\$2 50@3 00
" " Extra.	3 25@3 85
" " Family.	4 10@4 65
Winter Wheat Patent.	4 85@5 25
Minnesota "	4 85@5 10
Baltimore Winter Wheat Patent.	5 65@—
" Choice Patent.	5 40@—
" High Grade Family.	5 30@—
" Choice " Extra.	5 95@—
Maryland, Virginia and Penn's Super.	2 50@2 90
" " Extra.	3 25@3 75
City Mills Super.	4 00@4 65
" Extra.	3 25@2 65
" (Rio Brands Extra).	4 80@5 10
Fine Flour.	2 25@2 40
Rye Flour.	3 60@3 90
Hominy.	3 40@3 50
" Grits.	3 60@3 70
Corn Meal, per 100 lbs.	1 25@1 50

Baltimore, June 26, 1888.

CHESAPEAKE.

(From our own Correspondent.)

OUR ST. LOUIS LETTER.

Editor United States Miller, Milwaukee, Wis:

I suppose everybody must yield to the inevitable; but to come down gracefully from the high prices that were prevailing at date of my last, which was penned with such confidence in future strong values, is no easy task. On the 19th of May, our Cash No. 2 Wheat sold at 91 $\frac{1}{2}$, to-day at 84 $\frac{1}{2}$; July sold on May 19th from 90 $\frac{1}{2}$ to 87 $\frac{1}{2}$, to-day at 81 $\frac{1}{2}$ to 81 $\frac{1}{2}$. One year ago to-day the July option sold from 72 $\frac{1}{2}$ to 73 $\frac{1}{2}$. The study of the fluctuations in values is calculated to upset the most sanguine observer, and it is not surprising that so many traders discontinue it altogether.

The effect of the depression in wheat has been very noticeable in the flour trade, though the shrinkage has not been so marked, so far as the best grades are concerned; but trade in flour has been extremely sluggish. Our mills are generally running. Those mentioned in my last as undergoing repairs report completion, and are on the market again as buyers of wheat. The first carload of the crop of 1888 was received yesterday. It was consigned to Messrs. Hewitt & Sharp, and was sold at auction to the Camp Spring Milling Co., at \$1 per bushel.

The Eleventh Annual Excursion of the "Millers and Flour Dealers" occurred on the 6th inst., and was the event of the season, though the presence of the great Democratic National Convention probably accounted for the rather smaller attendance than in former years. Among our guests of the day were from forty to fifty millers from interior points in our own and adjoining States, and I am sure they enjoyed the occasion immensely.

Last week we sent two "Sleepers" loaded with millers to the National Convention at Buffalo. Among the names making up the party, I notice from neighboring points: C. H. Seybt of Highland, Ill.; Henry R. Whitmore and W. D. Whitmore, of Quincy, Ill.; Henry C. Yaeger, of Carlinville, Ill.; H. H. Beach, of Litchfield, Ill.; Chas. B. Cole, of Chester, Ill.; W. J. Gerkin, of Bloomington, Ill.; D. J. Sparks, of Alton, Ill.; W. Klinefelter, of Warsaw, Ill.; H. L. Halliday, of Cairo, Ill.; W. Sauer, of Evansville, Ill.; L.

Schaaff, St. Mary's, Mo.; H. C. Brinkman, Kas. City, Mo.; H. H. Waggoner, Independence, Mo.; B. F. Trurert, of Springfield, Ill. Our local interests were represented by Louis Fusz and Geo. Bain of the Regina Mills, Alex. H. Smith of the Victoria Mills; Conrad Fath of the St. Mary's Mills, and E. O. Stanard of the Eagle and Alton Mills; while the Mill building and machinery interests were represented by H. M. Stanley of Todd & Stanley Mill Furnishing Company, and R. L. Downton of the "Downton Company."

By the arrival of the time for your next issue, we shall in all probability have harvested our winter wheat, and be enabled to report quite fully as to its yield and character, and hope we can render a good report.

Respectfully, S.

St. Louis, June 19, '88

CORRESPONDENCE.

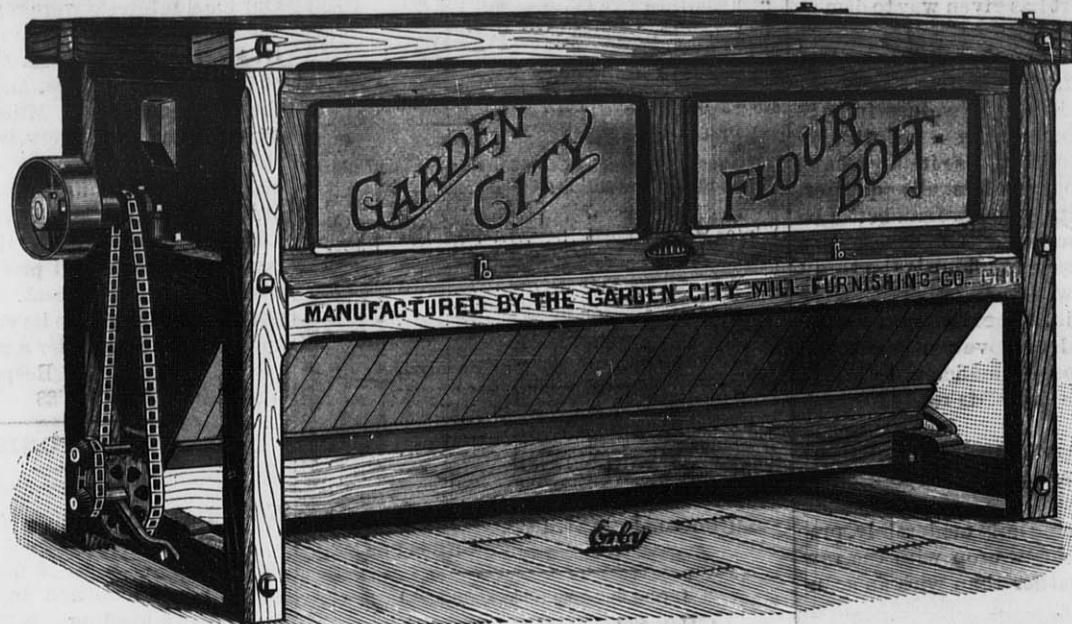
CREASE DIRT.

Editor United States Miller:

In looking over the last few copies of your paper—(you see I do not say valuable journal)—I fail to find anything in relation to the above heading. Why is this? Do you wish to be out of style; or to let the many others in your line reap the reward. You will find columns teeming with it. Perhaps you, like myself, do not believe in telling ghost-stories to children, or in frightening millers with a bugaboo. I speak for myself only when I most emphatically pronounce the crease dirt theory a scare. I was impressed with the subtle arguments of the exponents of this theory, and verily believed it was there. In fact I had, what looked like ocular demonstration. A series of experiments on my own hook, plainly showed me, that there was no such thing as crease dirt in anything like the quantity to be detrimental to the flour; let that flour be the very cream of the patent. Any miller can readily determine the facts for himself. Take a kernel of well cleaned wheat—cleaned as well as modern machinery can clean it, then place it on a sheet of pure white paper. Take your pocket knife (the best wheat splitter in the world,) and carefully divide the kernel through the crease. As all are well aware, no machine made can make as perfect a break (first) as this, hence the experiment, or the results of the same, should have weight. Take a good glass and examine well the divided grain. Along the edge of each half-kernel is a dark streak. Your knife, or other fine implement, is brought into play, and you try to remove this streak. It cannot be done unless the bran is also removed, and a good examination of that bran, will still show the dark streak. The fact is, it is the color of the bran in that particular part of the berry, the same as we will find different shades of color on the main portion of the grain. The most careful handling of a single kernel of wheat in this manner will produce a minute quantity of what looks like dirt. Your glass again, and you will find minute particles of bran broken or chipped off mixed with flour and fine middlings and an extremely small quantity of dark stuff, that for the sake of argument we will call dirt. Vendors of machines for the special purpose of removing this dirt claim not over one per cent. of break flour is made. If we should thoroughly separate this amount and put each of the different materials in a

(Continued on Page 35.)

GARDEN CITY FLOUR DRESSER.



SUPERIOR TO MOST.

THE EQUAL OF ANY FLOUR DRESSER MADE.

Sole Agent for the Celebrated Bodmer Bolting Cloth.

For Prices, Address

**GARDEN CITY MILL FURNISHING CO., CHICAGO,
ILL.**

• PRINZ • Patent Improved Cockle Machine.

The Most Durable, Simple and Efficient Machine for the purpose on the market.

CENTENNIAL MILLS,
EVANSVILLE, IND., June 14, 1887.
FAUSTIN PRINZ & CO., Milwaukee, Wis.

GENTLEMEN:—Enclosed please find check in payment of Cockle Machine sent us May 26, 1887. The Machine does its duty.

May 23rd, 1888.

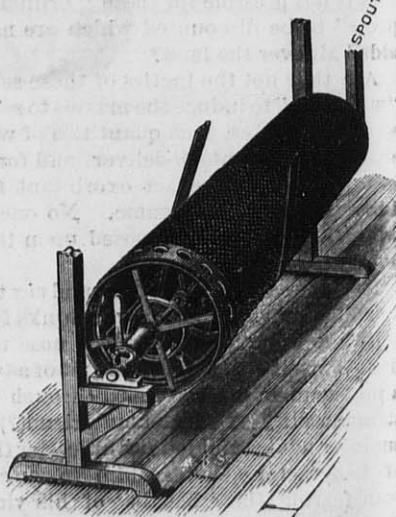
The Cockle Machine you sold us a year ago is doing its work as well now as it did in the start and has not cost us a dime for repairs yet.

Respectfully yours,
J. W. LAUBSCHER & BRO.

MANUFACTURED IN FOUR SIZES.

FAUSTIN PRINZ & CO., MILWAUKEE, WIS.

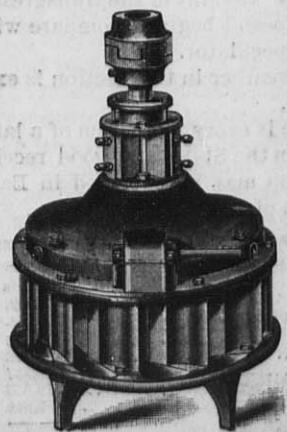
Write for Descriptive Pamphlet.



**Thornburgh
AND
Glessner,
Chicago.**

ELEVATING
— AND —
CONVEYING MACHINERY.

BURNHAM'S
Improved Standard Turbine



Address **YORK, PA.**

pile by themselves, we would find something like this: $\frac{1}{2}$ of one per cent. fine bran, $\frac{1}{2}$ fine middlings, $\frac{1}{2}$ flour, and $\frac{1}{2}$ dirt. Admitting this $\frac{1}{2}$ of one per cent. to really be the secretions of the crease, what is gained by putting in expensive machinery to remove it. True it will go in with the flour, but I defy the best known expert to see any change in the color of the flour, where only $\frac{1}{2}$ of one per cent. of impurities were mixed with it. 'Tis like a drop of ink in a barrel of water, it neither changes the color or alters the taste. Millers, however, are more fully understanding the matter at the present time, many who have experimented have saved the extra expense of looking for a buzzard and finding a mosquito.

Now, Mr. Editor, I will intrude on you no longer. If you see fit to give this some out-of-the-way corner, well and good. You will be in the prevailing fashion.

Yours, truly,

JAMES L. BARNUM.

Buffalo, N. Y., June 20, 1888.

OAT MEAL MILLING.

(By W. B. in the Miller's Gazette, London, Eng.)

KILN DRYING.

The kiln has, from time immemorial, been a conspicuous auxiliary to the oat meal mill. When in operation drying, the smell of the smoke from the kiln was noticeable long before you reached the mill, and those who had any experience in milling had no difficulty in deciding two things, (1), the quality of the oats, and (2), the working of the kiln. In dry seasons, early harvests and fine crops, the drying of the oats was a simple affair, comparatively speaking; but when the reverse of these conditions was experienced, it was otherwise, the task of the miller being trying in the extreme in order to produce a passable sack of meal. It follows that between good and bad seasons there is a considerable diversity in the quality of oat meal; more so, perhaps, than in wheaten flour, which as a rule is not injured in kiln-drying the wheat.

Generally speaking the husks or shells from the shelling fan are used as fuel for heating the kiln, but in some places peat, wood, charcoal, or coke are used. People accustomed to use the meal of either prefer each their own mode of drying. One will tell you, your meal is peat "reeked," or smoked, the other that the husk of the oat increases the bitterness of the meal. It may be admitted that there is a sprinkling of truth in these objections, but much depends upon the quality of the peat and oat shells, and they are used in the furnace of the kiln, and whether the heated air and gases are allowed to stagnate in the oats too thickly spread on the floor of the kiln.

Pennant in his "History of Scotland," informs his readers that he saw the inhabitants of the Western and Northern isles spread their corn in the straw upon a clean-trodden area of ground, set fire to the straw, and when the whole crop was thoroughly burnt the charred oats, termed "graddan," were winnowed and sifted-out, and then shelled and ground with querns by women.

Various patents have been taken out for automatic kilns specially for drying oats, others, as Gibbs', for general drying and conditioning purposes. Mr. S. M. Macrory, of Newton Oatmeal Mills, Limavady, uses a Gibb's cylinder 48 feet long by 3 feet 6 inches

diameter. A continuous blast of air from a furnace heated to a temperature from 700 to 800 degrees passes through the grain as it falls from the upper cups to the lower, thus carrying off the moisture with it in the form of invisible steam. The cleaned oats are fed in at the upper end of the cylinder, and pass out at the lower, finely flavoured and ready for the shelling stones, after being cooled and cleaned a second time, to remove any dust or dirt liberated in the process of drying. In ordinary weather the cooling takes about three days, during which the kernel shrinks more than the outer shell, which favours the shelling process, more especially in Macrory's patent arrangement.

The shelled groats are then cleaned to remove the downy substance that covers the kernel, with the coarse, hard coating of the groat. This done the groats are then ended by steel cutting rolls. The coarse, bitter ends, including the germ, are next removed, leaving the middle portion of the kernel for the flaking rolls. The result is Mr. Macrory's "flake oatmeal," the flakes being light, spongy as it were, and of uniform white color in the porridge, which is wholly free from the coarse, harsh taste of ordinary meals, so that some difficulty has been experienced to get persons to believe that it was oatmeal.

And this is not all, for the short time that it requires on the fire is a great economy of time to the cook and of fuel; two objections which have always stood in the way of the use of porridge for children. In ordering porridge, the family doctor invariably urges the necessity of long boiling. And why? because it destroyed the bitter principle, and renders harmless other objectionable impurities of which Macrory's flake oatmeal is free. Instead of a cylinder rotating, as Gibbs's, others have patented vertical cylinders plain or corrugated, down the sides of which the grain descends by gravitation through a hot blast of air. In other words, heated air passes through the descending grain. Thus: In 1878, Mr. Thomas Hartley Preston, of Kirkby Stephen, Westmoreland, obtained a patent, No. 1884, for "Improvements in apparatus for heating and drying wheat, grain and middlings." A communication from B. H. Gratot, of Platteville, Wisconsin, U.S. A.

This apparatus consists of an outer and inner vertical corrugated cylinder. The top of the inner cylinder terminates in a conical dome on the top of which the grain is fed from the hopper, so that in descending down the sides of the cone it falls equally into the vertical space between the inner and outer corrugated cylinders, the corrugations turning over the grain as it descends. Both cylinders are fitted with hot air supply pipes above, and with exhaust pipes below. Instead of hot air, steam may be used should occasion require. Another idea is to make the grain descend down a series of inclined planes, one plane inclining inwards and the other outwards, each two forming a pair in the series, which may include any number of pairs required. Hot air is either forced through the falling grain or exhausted from a furnace. The grain is fed into the upper pair from a hopper, and descends down a chute from the lower pair into the well of the elevator, which removes it to the cooling silos.

In 1880, Wm. Davidson, of Mintlaw, Aberdeenshire, obtained a patent of this class, No. 3,542. "A machine for drying grain."

This is a double vane machine. Each vane is an inclined plane, two forming a pair in the series, as above described. But instead of the whole series being single, there are two or more drying chambers, in each of which there is a series; or "the heating chambers may be divided into two or more horizontal compartments, the lowest heated by the action of the furnace direct, and each upper one having separate flues carried up to it from the furnace. In either case it is preferred to make the grain descend twice through the machine, so as to be partially dried in its first descent, and completely so in descending the second time when nearest the fire. The vanes or boards may be made of thin sheet metal or cast-iron, or even fire-clay, though it will be generally advantageous to use a material which is a good conductor of heat."

The above two examples are given, not as the best of their respective classes, but as suggestive of further improvement. There are many other classes of drying machines, such as endless wire cloth, venetian bands, etc., but they will not stand the heat required to dry oats for shelling. Doubts may be expressed as to whether either of the above two patents will do so economically as to fuel, attendance, and expenses of construction, all of which must be borne in mind by the miller.

THREE INVENTORS WANTED.

In an interesting article in *The Forum* for May, Prof. R. N. Thurston says:

I have often taken occasion to remark that the world is waiting the appearance of three inventors, greater than any who have gone before, and to whom it will accord honors and emoluments far exceeding all ever yet received by any of their predecessors. The first is he who will show us how by the combustion of fuel, directly to produce the electric current; the second is the man who will teach us how to produce the beautiful light of the glow-worm and the fire-fly, a light without heat, the production of which means the utilization of energy without that still more serious waste than the thermo-dynamic now met with in the attempt to produce light; while the third is the inventor who is to give us the first practically successful air ship. The first two of these problems is set for the electrical engineer, and we may be pardoned excess of faith should it prove to be such, when contemplating the enormous gain to humanity which must come of such inventions, we look confidently for the genius who is to multiply the wealth of the world to an extent besides which even the boon conferred by the creators of the steam engine and telegraph will not appear overshadowing. When this inventor comes forward, and most probably not till then, it is very likely that we shall see steam superseded by a rival.

ACCORDING to experiments, the tensile strength of a wet rope is only one-third that of the same rope when dry; and a rope saturated with grease or soap is weaker still, as the lubricant permits the fibers to slip with greater facility. Hemp rope contracts strongly on being wet, and a dry rope twenty-five feet long will shorten to twenty-four feet on being wet.

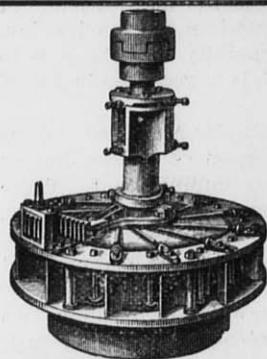
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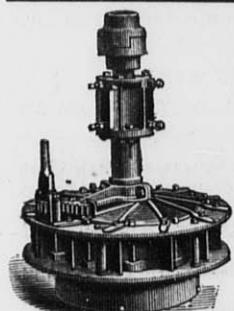
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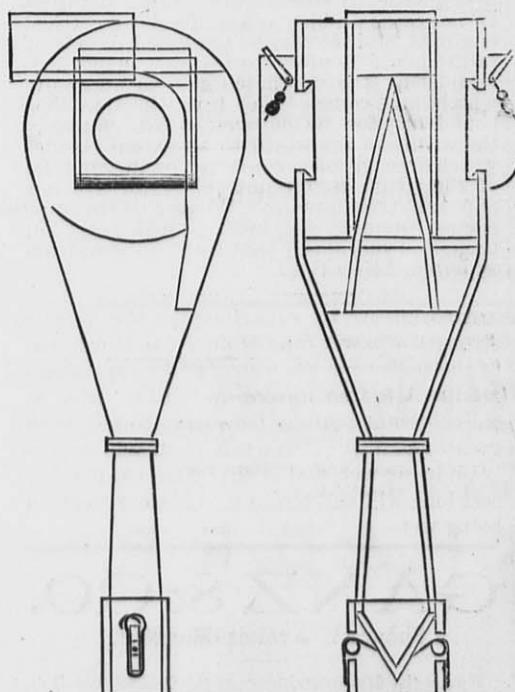
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In offering this machine, I would call your attention to the arrangement for regulating the Catcher to suit the amount of air from fan (as shown by cuts), there being hardly two purifiers in a mill that discharge the same quantity of air, owing to the kind of middlings handled, some requiring light, while others require heavy suction, thus the same discharge opening will not answer for all machines. For this reason automatic machines fail in so many cases. In this machine the valve is set to balance the Fan, which point can be told instantly by a humming noise when the Fan is choked, and when once set is right at all times. Should the speed vary the valve opens and closes as the air varies. These machines are without any machinery whatever, requiring no extra power, no cloths to clog, or anything to get out of repair. As they start, so they will operate for years. Nor is this a so-called improvement on some other machine, but an entirely new machine, gotten out under our own patents and sold entirely on its merits. Warranted in every particular. These machines are intended for all kinds of work in a mill. It will be observed in the discharge of the dust that the spout is provided with a spring valve which can be set so as to allow the spout to fall to a certain point, when the material will counterbalance the valve and discharge the dust which can be spouted away to any suitable point, or the spout can be detached and an intermediate spout put to the machine and the valve spout attached at some more convenient place in the mill. The machine can be set at any convenient point. All that is required is that the spout shall enter on a level, or nearly so, with an abrupt angle in the spout, always being careful to close the discharge valve just to that point where the Fan does not labor, as the opening is made large so as to meet all cases, and if not closed the machine will blow out. These machines are built in three sizes for Purifiers and two sizes for Smutters.

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SENATOR HAWLEY ON PROTECTION.

Senator Hawley in a recent speech says: "My proposition is, that protection is always the right of a government, and sometimes its highest duty. The question is, what is best for the social prosperity of our people? We are a self-contained people, an independent people. We can manufacture and grow every thing save tea and coffee that we need. Great Britain is the particular exemplar of free trade in the Old World. She has a peculiar situation and must trade with the world. She cannot by any possibility be a self-contained nation. To retain her connection with her colonies she must be mistress of the seas. Great Britain is put forward as the great illustration of free trade. In England they raise a \$100,000,000 by a tariff, so it is not a free trade country. Some free traders are frank enough to say they want low wages. I deny that a man who gets 50 cents a day can, under any condition, live as well as the man who gets \$1."

CO-OPERATIVE INDUSTRY.

Mr. N. O. Nelson, of St. Louis, at a banquet of business men of that city in speaking to the toast which forms the caption of this item, made the following well-put remarks, which THE UNITED STATES MILLER takes pleasure in reproducing for the benefit of its readers. In referring to strikes and lock-outs he says:

"Co-operation, especially in production, by which one would participate in the product according to the share he furnished in producing, would be the equitable and efficient remedy. But there are difficulties surrounding simple co-operation. Fifty or one hundred workmen may join together to start a factory, but in the absence of experienced management and of sufficient capital, their disadvantages in competition with those who are possessed of every advantage, leave but an uncertain prospect of success. That form of co-operation known as "Profit-sharing" takes a business already prosperous, and not only insures its continued prosperity, but increases that prosperity by interesting every man concerned in its operations, in its success. The business goes on undisturbed. The management receives its proper pay for service; capital receives its interest, labor receives its regular wages, and the remaining net profit is divided between each of these three factors in the proportion that each has contributed to its success. Profit-sharing is applicable only to such concerns as are doing a prosperous business. Those concerns which earn no profit have made a full division in the wages which have been paid. It is an unavoidable presumption that a man who is directly interested in the earnings must make, and experience teaches that he does make, a more efficient operator. This is true of clerks as well as workmen, of agents as well as junior partners. In prosperous times the harmony of united effort will increase the profits; in years of depression it will help to decrease the losses, or make a profit where otherwise none would be made. It will necessarily obviate all danger of strikes or lock-outs. There is a perfectly mutual interest at stake. More than all this, it will remove the growing danger of collision between the two classes, those who pay wages, and those who receive them. If applied to our great railroad systems and conducted upon a fair basis, we should have no such distressing conditions as those of the Missouri Pacific strike, the Reading strike, and the "Q" strike. Andrew Carnegie, the greatest of American manufacturers, who now has about fifty thousand workmen lying idle, is at this time negotiating with his men to adopt the profit-sharing system. There are now in the United States over a hundred extensive manufacturers who are working under the system, and I have yet to learn of but a single instance wherein it has proved unsatisfactory. It affords an opening for bringing the master and his men into closer and more friendly relations, and tends to make better, more peaceable and safer citizens of the wage earners. It is in no sense revolutionary, but is a simple evolution of the rapidly changing organization of industries."

NIAGARA IN HARNESS.

Apparently the scheme so long discussed of utilizing the tremendous water-power of Niagara through the agency of dynamic electricity, is about to be consummated. Two years ago the necessary authority was secured from the legislature, and the intervening time has been employed in perfecting the plans and securing the needed capital. Now it is said these ends have been attained and work is about to begin. The water is to be conveyed through a tunnel beginning above the falls at a considerable depth, and connected with the river by a series of lateral branches. The power will be obtained from the weight of water in perpendicular wells connecting the main tunnel with the branches. The column of water will be used to turn turbine wheels at the bottom.

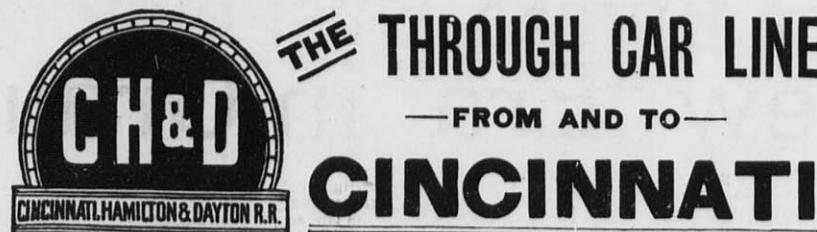
The project, if successful, may prove the beginning of an industrial revolution as important to the interests of insurance as any that has taken place within a century. For it will mean the substitution of the power of Niagara for the numerous steam-engines and perhaps for heating and lighting appliances as well, that are now in use within a radius of many miles around the Falls. In the end it may mean the transformation of the present methods of obtaining power and heat in nearly all our larger cities.

There is something stupendous in the thought of such a revolution apart from its mere industrial aspects. The world's work and the world's civilization are maintained to-day on the stored up products of nature's energy in the past. We are living at the expense of those great coal deposits which were made thousands of years ago, and often the question has been raised, what will be done when in a distant future coal comes to an end? The experiment at Niagara may solve the problem. The harness about to be put on

there, is on the present active forces of nature—the forces which, so to speak, are daily going to waste all around us. These are inexhaustable while the sun continues to burn and the earth to revolve. Our fathers depended on them when they took their fuel from the growing forests and their power from the wind, and we, in this industrial age are preparing on a grand scale to return to their footsteps. In diverting the work of the sun's heat through the agency of the electric current we are virtually using nothing which would not otherwise be wasted in space. Should the wind in like manner be harnessed we should be consuming the store of energy laid up in the earth itself when it was first set spinning on its axis. Thus would the newest industrial phase join hands with the tidal waves to lengthen the day and hasten the time when the sun must cease to rise and set in the heavens. But these are matters with which practical underwriters have no concern.—*Insurance Monitor.*

THINGS WORTH KNOWING.

HOW TO PREPARE CALCIMINE.—Soak one pound of white glue over night; then dissolve it in boiling water and add 20 pounds of Paris white, diluting with water until the mixture is of the consistency of rich milk. To this any tint can be given that is desired. *Lilac*—Add to the calcimine two parts of Prussian blue and one of vermillion, stirring thoroughly and taking care to avoid too high a color. *Gray*—Raw umber, with a trifling amount of lampblack. *Rose*—Three parts of vermillion and one of red lead, added in very small quantities, until a delicate shade is produced. *Lavender* Make a light blue and tint it slightly with vermillion. *Straw*—Chrome yellow, with a touch of Spanish brown. *Buff*—Two parts spruce, or Indian yellow, and one part burnt sienna.

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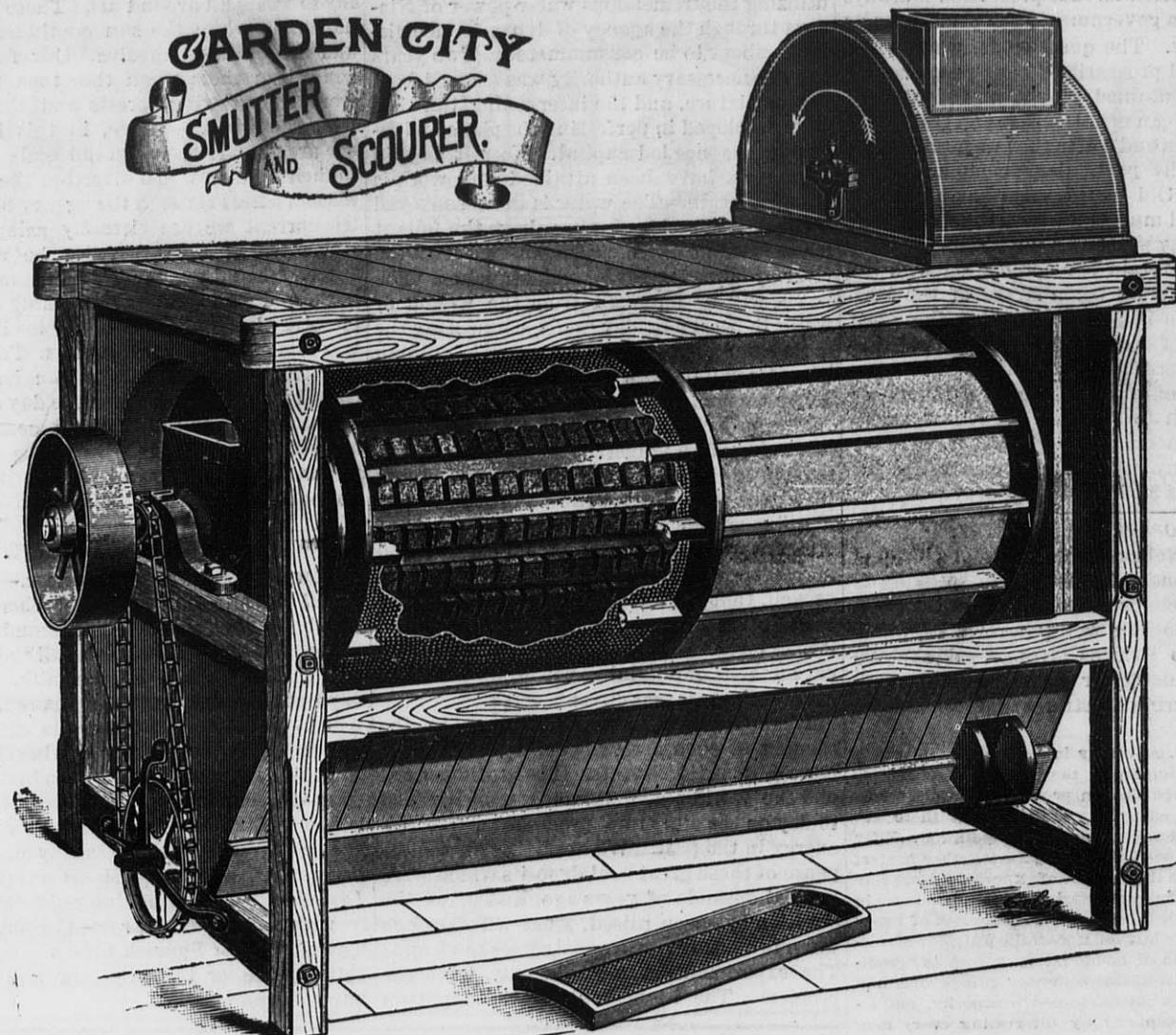
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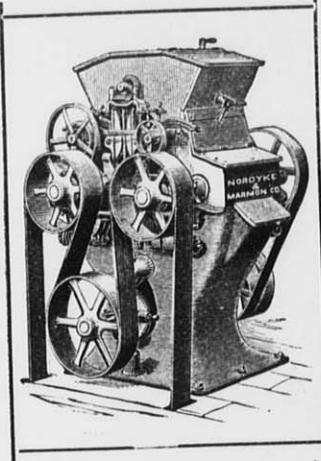
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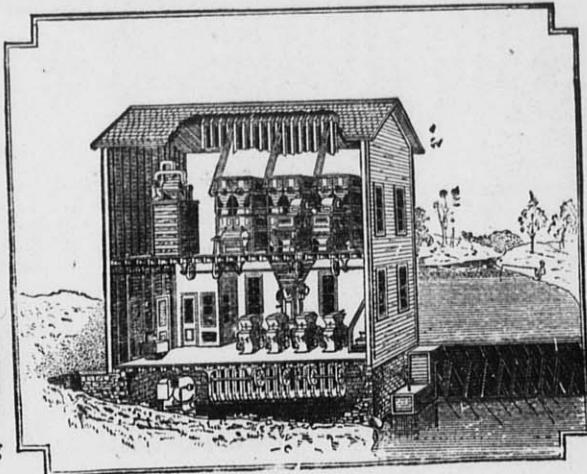


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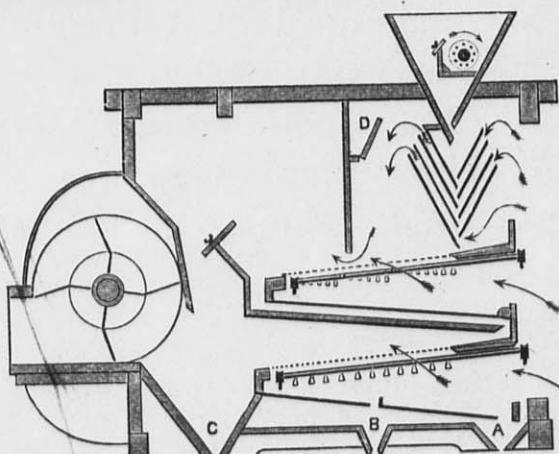
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